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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

ORIGINAL

In the Matter of)

Revision of the Commission's)
Rules to Ensure Compatibility)
with Enhanced 911 Emergency)
Calling Services)

CC Docket No. 94-102
RM-8143

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REPLY COMMENTS OF NORTHERN TELECOM INC.

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March 17, 1995

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SUMMARY

As explained in its comments, Northern Telecom fully supports the goals of this proceeding -- to enhance the compatibility and utility of 911 services as new technologies are deployed. In its initial comments, Northern Telecom did have some suggestions on how best to achieve those goals. Several of the other initial comments support Northern Telecom's proposed modifications to the Notice of Proposed Rulemaking.

Northern Telecom believes that the record reinforces the need to draw distinctions among the different types or installations of multiline telephone systems, and that different E-911 obligations may be appropriate. Northern Telecom also observes that many other commenters similarly believed that there was a need for uniformity with regard to the required standards and principles, and that development of the necessary standards and principles should result from a consensus of the affected interests. The Commission should not impose the standards, and the Commission should also ensure that the industry-developed standards can evolve over time rather than being frozen in the FCC's Rules. Finally, there appears to be significant support for Northern Telecom's suggestion that a negotiated rulemaking process be used to develop the required consensus.

Northern Telecom does disagree with some of the initial comments submitted in this proceeding. Several parties proposed that the Commission's three phase location requirements for CMRS be adopted, and some even proposed a faster implementation and/or

a more precise location capability. As Northern Telecom explained in great detail in its initial comments, the Commission's proposals are premature in light of the significant development work that remains. Indeed, many commenters also questioned the utility of the first two phases that were proposed in the NPRM.

Likewise, Northern Telecom questions the advisability of the proposed requirement of assigning priority to E-911 calls. Implementation may be difficult, and could be counterproductive. Calls from numerous "good samaritans" reporting a minor "fender bender" could block other important calls from going through.

Finally, Northern Telecom disagrees with some of the specific proposals put forth in other initial comments. Northern Telecom objects to, inter alia, the Consumers First cellular handset modification request; the Shelby County proposal for multiple PBX dialling sequences to access 911; and the NARUC and BellSouth requests to allow non-uniform technical requirements or data base formats. Northern Telecom does agree with the proponents of a limitation of liability, and suggests that such protections be extended to manufacturers.

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REPLY COMMENTS OF NORTHERN TELECOM INC.

Northern Telecom Inc. ("Northern Telecom") hereby responds to many of the comments on the Commission's proposals to amend its Rules to expand the enhanced 911 capabilities of mobile services and multiline telephone systems.^{1/} More than 120 parties filed comments, including equipment manufacturers, wireless services providers (both satellite and terrestrial), public safety officials, user groups, government agencies, engineering consultants and automatic location technology developers. While there is a general agreement with the overall goals of the Commission -- enhancement of the compatibility and

^{1/} Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services, 9 FCC Rcd 6170 (1994) (hereafter cited as "E-911 NPRM"). The Commission granted an extension of time until March 17, 1995 for the filing of reply comments. Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services, DA 95-141, released February 7, 1995.

utility of 911 services as new technologies are deployed -- there appear to be some sharp differences of opinion as to whether the E-911 NPRM proposals are the best means of achieving that goal.

In its comments, Northern Telecom agreed with the Commission that wireless services should be better integrated into E-911 systems. Similarly, Northern Telecom concurred with the Commission that multiline telephone systems needed to be modified to ensure that they also functioned properly with E-911 systems. Northern Telecom had some concerns, however, that the E-911 NPRM had underestimated the complexity of some of the issues, and that several important changes to the proposals were necessary in order to ensure that the public interest was maximized.

In these Reply Comments, Northern Telecom will demonstrate that there was significant support in the other initial comments for Northern Telecom's proposals. In addition, Northern Telecom will respond to those initial comments that generally are inconsistent with Northern Telecom's suggested changes to the E-911 NPRM. Finally, Northern Telecom will address some specific technical proposals offered by some other commenting parties.

Other Commenting Parties Echoed Northern Telecom's
Call for Changes to the E-911 NPRM

Northern Telecom in its initial comments suggested some important changes to the Commission's proposals for dispersed

private telephone systems, also referred to in the E-911 NPRM as private branch exchanges ("PBXs"). Northern Telecom indicated that such a category of equipment covers a broad range of equipment and installations, including key telephone systems ("KTS") serving a handful of lines to large PBXs serving in excess of 100,000 stations. Several other commenters agreed with Northern Telecom that the rules should recognize the differences within this group, and not necessarily apply all of the proposed requirements uniformly throughout the broad category.^{2/}

Northern Telecom also expressed concern that the Commission not freeze into regulations any specific technology, but instead should encourage the deployment of modern signalling technologies such as the use of common channel signalling and ISDN. Other commenting parties shared Northern Telecom's belief that it will be necessary to incorporate modern technologies into the E-911 network, including interconnections between PBXs and the network, between the wireless switches and the E-911 tandems

^{2/} E.g., GE Rescom at p. 13; Telident at pp. 7-8; Pertech at p. 3; BellSouth at p. 7. In a related vein, Rolm (at p. 1) was concerned that categorical relief for KTSS would simply result in manufacturers re-classifying particular equipment as a KTS rather than a PBX. Northern Telecom had not proposed a blanket exemption for key telephone systems. As Northern Telecom indicated, there are a wide range of types of equipment falling under the broad category of dispersed private telephone systems ("DPTS"), including PBXs, KTSS and hybrids. Northern Telecom suggested that the Commission refer to a negotiated rulemaking committee the issue of what obligations should apply to different types of equipment under different installation scenarios. Indeed, the need to reduce some of the burdens in some situations is consistent with the suggestion of Rolm at p. App-2 that non-dispersed MLTSS should not be required to have dedicated E-911 trunks.

(or other points of interconnection with the E-911 network), and between the E-911 tandems and the public service answering points ("PSAPs").^{3/}

One of the largest obstacles that must be overcome before wireless systems can provide E-911 functionality similar to wireline functionality is the need to develop a consensus on the standards for the interchange of the additional information required, including the ability to determine the calling parties location and transmit that information to the PSAP. The shared goal of all of the differing interests should be to improve wireless E-911 functions for CMRS in a manner that will provide the best service to the 911 caller, avoid incompatible intra- and inter-system solutions, and minimize costs to the CMRS user and PSAP provider. A consensus on standards will avoid inconsistent solutions, excessive manufacturing costs, increased service provider expenses and problems for the PSAPs.

Emergency services providers that are seeking accelerated deployment may not fully appreciate the costs and service problems that would emerge if there is not adequate time to develop a consensus on standards. Most new PCS MTA service territories cover more than one state. The new PCS MTA licensees will not want (and cannot easily accommodate) different solutions for each state in their service territory. As a result, multiple state emergency service providers will need to accommodate PCS

^{3/} E.g., Harris at p. 3; Pertech at p. 6; AT&T at p. 17; Bell Atlantic at p. 4; Rolm at p. 2.

licensees that will want one solution for their multi-state territory. Deadlines without a consensus on standards could result in a multitude of inconsistent "solutions" that would be costly and inefficient for consumers, CMRS providers, manufacturers and emergency services providers. Because of the significant standards development work that remains for wireless systems, many other parties shared Northern Telecom's concerns and suggested that the Commission not adopt the "hard" deadlines for wireless services proposed in the E-911 NPRM.^{4/}

With respect to multiline telephone systems on the other hand, Northern Telecom in its initial comments indicated that the compliance deadlines for many of the proposed requirements were realistic. Thus, Northern Telecom disagrees with AT&T's suggestion that the deadline for ensuring access from a PBX by simply dialling 911 be extended from 18 months to three years.^{5/} Northern Telecom agrees with AT&T, however, that Part 68, which deals with customer equipment registration, is not the appropriate place in the Rules to address these E-911 issues.^{6/} The desired PBX functionality will in many cases not be incorporated into the hardware, but instead will be provided by

^{4/} E.g., AT&T at p. 16; NYNEX at p. 9; Motorola at p. 17; BellSouth at pp. 15-16; SBC at p. 19; PCIA at p. 3. Wireless PBXs present many of these same problems, although if the provision of the location of the particular base station the wireless PBX handset is accessing is deemed sufficient, then the current E-911 systems should be able to accommodate that ALI information within the timeframes envisioned by the Commission.

^{5/} AT&T at p. 11.

^{6/} AT&T at p. 3. See also, Rolm at p. 2.

software upgrades or peripheral equipment. Moreover, many of the obligations fall on the PBX owner or system manager rather than the PBX manufacturer. Thus, the Commission should consider creating a separate Rule Part to address E-911 compatibility issues, rather than trying to fit these differing parties' obligations into Part 68, which is principally concerned with connection of terminal equipment to the telephone network.

Northern Telecom also suggested in its initial comments that many of the outstanding issues that needed to be resolved before the manufacturers and service providers could begin to implement the necessary changes to ensure E-911 compatibility were best addressed through a negotiated rulemaking proceeding. While the particular mechanism of a negotiated rulemaking committee was not specifically addressed by the other initial comments, many of those comments provide support for Northern Telecom's proposal on this issue. There was widespread agreement on the need to develop industry-wide consensus on many of the technical issues. In addition, there was a firm belief that all of the affected parties should participate in the development of those standards, rather than have them imposed by the Commission.^{7/}

^{7/} E.g., AT&T at p. 36 (standards should developed by industry with FCC monitoring); New Jersey at pp. 17, 19 (suggests an advisory committee like Network Reliability to resolve wireless ALI issues); US WEST at pp. 8-9; MCI at p. 2; CMT at pp. 7-8; NYNEX at pp. 9-10; BellSouth at p. 13; TIA at n. 4; SBC at pp. 8-9; Ad Hoc et al at p. 2; CTIA at p. 17.

For the reasons detailed in its initial comments, Northern Telecom continues to believe that a negotiated rulemaking committee would be the appropriate forum for development of the necessary consensus.^{8/} All affected interests would be represented. In addition, the Commission, through representation on the Committee, could play more than a passive, observational role.^{9/} Such participation should minimize any unnecessary delays, thus ensuring the timely deployment of any new functionalities. In recognition of the diversity of issues that need to be resolved, Northern Telecom believes that the negotiated rulemaking process is sufficiently flexible to accommodate splitting out the wireless and multiline telephone system issues.^{10/} This could be accomplished through use of multiple negotiated rulemaking committees, or through the use of separate working groups or subcommittees of a single negotiated rulemaking committee.^{11/}

8/ See generally, Northern Telecom Comments at pp. 16-18.

9/ Cf., New Jersey at p. 2 (it is critical that the Commission be directly involved in setting standards).

10/ Cf., TIA at p. 7 and Telident at p. 12, suggesting that the Commission separate out MLTS and CMRS issues.

11/ Northern Telecom observes that there may be some overlap between the CMRS and MLTS issues, particularly with respect to wireless PBXs. Thus, it might be most efficient to utilize a single negotiated rulemaking committee, with multiple working groups and/or subcommittees.

Northern Telecom Disagrees with Some of the Commenting Parties' Support for Portions of the E-911 NPRM

Several parties voiced support in their comments for different proposals in the E-911 NPRM. To the extent that Northern Telecom disagreed with some of the provisions in the E-911 NPRM, it also disagrees with those parties' initial comments. Despite some support by the initial commenters, for the reasons detailed in Northern Telecom's initial comments and the submissions of other initial commenters, Northern Telecom continues to believe that the public interest would be better served (i) by not adopting the "hard" one, three and five year deadlines of the E-911 NPRM for deployment of wireless automatic location information capabilities; (ii) by not requiring priority for wireless 911 calls within one year; and (iii) by not imposing labelling requirements for PBXs and wireless handsets.

Northern Telecom appreciates the desire of the emergency services providers to receive much more information than they acquire presently, and to enjoy the benefits of added functionality. Thus, several commenting parties supported the Commission's three stage proposal for implementation of automatic location information; indeed, some parties advocated faster implementation and/or greater accuracy than the five year requirement of three-dimensional location within an accuracy of 125 meters.^{12/} Many of the developers of particular location

^{12/} See generally, Driscoll at pp. 1-2; Terrapin at p. 5. Cf., APCO/NENA/NASNA at p. 42 (accuracy within 10 meters); Texas ACSEC (continued...)

technologies submitted descriptions of their systems and capabilities in order to argue that the Commission's deadlines were readily achievable.^{13/}

Northern Telecom continues to evaluate the different location technologies, and the information submitted by the developers provides the Commission with a sense of the various systems that have been proposed. However, there are at least 144 combinations of possible technologies and RF access methods that need to be considered. To date, no preferred candidate has emerged that is effective for the multiple RF access and transport technologies that are expected to be deployed, such as TDMA, CDMA, AMPS, PACS and PCS 2000. Indeed, the Report of the Joint Experts Meeting, endorsed by many of the emergency services providers (including APCO/NENA/NASNA), indicates that location technologies are not yet mature and no integrated solutions are evident.^{14/}

^{12/}(...continued)

at p. 10 (accuracy within 10 meters); Shelby County at p. 4 (125 meter accuracy within 3 years); Los Angeles at p. 7 (125 meter accuracy within 3 years); Smith Advanced Technology at p. 18 (2-3 year phase in); New Jersey p. 16 (five year period could be shortened to 4 years, although they acknowledge that technology is not yet mature).

^{13/} Technology proponents and the basis for their systems include: KSI (using angle of arrival); Associated Group (using TDOA); Terrapin (using preexisting FM signals); Tendler (using GPS); Stanford Telecommunications, Inc. (separate CDMA range finding transmissions); Smith Advanced Technology (using GPS).

^{14/} Joint Experts Meeting Report, November 2, 1994 at Secs. B.3.2-B.3.8.

Many of the initial comments reinforce the fact that despite the claims of some proponents regarding their own technology, much work still needs to be done. There appear to be drawbacks with each of the proposed systems.^{15/} For one thing, as the initial comments indicate, use of different technologies may preclude the ability of a system to determine the location of a wireless handset that is outside its "home" system.^{16/} As an example, if a system depends on a handset-based location technology (such as GPS), then it will be unable to determine the location of a "roaming" handset that comes from a system that uses technology based on special receivers at the base stations to determine location (such as angle of arrival).^{17/} Moreover,

15/ See generally, AT&T at pp. 31-35; US WEST at pp. 14-16; Elert at pp. 2-4; PCIA at pp. 16-18. Indeed, US WEST, which has conducted extensive research and has patented some of its own technologies, recognizes that much work remains. Cf., New Jersey at p. 16 (describing demonstrations performed in New Jersey using roof mounted GPS receivers, but acknowledging that for portable cellular handsets without an external GPS antenna there has been no similar demonstration).

16/ See, e.g., Smith Advanced Technology at p. 16.

17/ As a collateral issue, to the extent that a single, nationwide standard emerges from the negotiated rulemaking process as an FCC requirement, the Commission should ensure that any proprietary technology underlying that standard is available on a reasonable basis to all interested manufacturers. See, e.g., Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, 7 FCC Rcd 6924, 6982 (1992) (proponents are required to follow the ANSI patent policy of making a license available without compensation, or licenses will be made available under reasonable terms and conditions that are demonstrably free of unfair discrimination). Cf., Inquiry into the Need for a Universal Encryption Standard for Satellite Cable Programming, 5 FCC Rcd 2710 (1990) at ¶ 52 (the Commission need not resolve the legal issue of its ability to control licensing of proprietary technology/patents because it declined to adopt a universal encryption standard).

the cost of deploying the different technologies is still speculative, and the persons incurring those costs (at least initially) will vary depending on whether the solution is system-based, handset-based, or a combination of both.

With respect to the first two stages of the proposed automatic location capability, several significant questions were raised in the initial comments with respect to their value. Indeed, according to a survey of emergency services providers, if only approximate location information is available, the call-back number is preferred over the location.^{18/} Moreover, the information on the location of the caller may not provide any useful information on the person in distress when the call is made by a "good samaritan" who does not remain at the scene.

In light of all of the uncertainties surrounding the provision of automatic location information (as well as the need to upgrade the E-911 systems to transmit the additional information), Northern Telecom submits that it would be better to refer these issues to the negotiated rulemaking committee rather than adopt the "hard" deadlines proposed in the E-911 NPRM.

Similarly, despite the support by some initial commenters for requiring that priority be assigned to 911 calls from CMRS handsets,^{19/} Northern Telecom does not believe that priority should be assigned from the handset. The assignment of

^{18/} Pertech at p. 9.

^{19/} See, APCO/NENA/NASNA at pp. 39-40; Ga APCO at p. 2 (also give a signal that the call is in queue, not just a busy signal); NENA Georgia at p. 3; CMT at p. 4.

priority for incoming calls to the network can be accomplished at lesser cost, and with higher efficiency, at the network data base. Manufacturers will be able to provide priority at the base station or the Home Location Register ("HLR"), but most cellular systems today do not utilize a call queuing system that would permit the assignment of priority at the handset. Northern Telecom's view is shared by several other manufacturers and service providers.^{20/}

Bellcore, through the CPAS Committee (composed of government representatives, manufacturers and service providers), is currently undertaking an effort to address implementation of prioritization.^{21/} Emergency service representatives participating in CPAS support assigning priority in the network, rather than from the handset, because it will avoid expensive retrofitting of existing handsets, and will serve the priority need more effectively. Further, federal, state and local emergency service providers need to reach a consensus as to what level of priority should be assigned to a 911 call. Emergency service providers are rightfully concerned that if a 911 call is

^{20/} E.g., AT&T at pp. 25-27; NYNEX at p. 12; BellSouth at p. 19; SBC at p. 10; Ericsson at p. 4; PCIA at p. 9. Cf., Motorola at p. 23 (will require two years to implement this capability).

^{21/} Prioritization raises not only technical questions with respect to its implementation, but also issues of "throttling" when numerous individuals all attempt to report the same disaster/accident. In addition, as the Department of Defense observes, many critical national defense or public safety calls deserving of potentially higher priority than 911 calls are made to numbers other than 911. It would not serve the public interest to have these calls blocked because of priority automatically being assigned to 911 calls.

assigned the highest priority, then a flood of "good samaritan" calls could prevent responding teams from being able to communicate. Northern Telecom believes that it is premature at best to impose a one-year deadline for implementing RF priority for 911 calls, and that priority from a CMRS handset may not be the preferred solution.

Northern Telecom also continues to believe that the Commission should revise its labelling requirement proposals, notwithstanding some support in the initial comments.^{22/} Northern Telecom believes that such labelling could be misleading with respect both to PBXs and wireless handsets. Depending on the capabilities of the wireline portion of the E-911 system and the PSAP, E-911 service may not be available even if the PBX or wireless handset is fully compliant. Northern Telecom believes that customer education is superior to the labelling requirements set forth in the E-911 NPRM.^{23/}

^{22/} E.g., Texas ACSEC at pp. 5, 10; New Jersey at p. 17 (also include 911 information in advertisements and marketing brochures).

^{23/} Other initial comments support this position. See e.g., CMT at p. 10 (inserts or mailings, or defer to advisory committee); Pertech at pp. 7-8 (labels could be misleading by suggesting 911 service is available when in fact it may not be); Motorola at p. 26; TIA at p. 15

Northern Telecom's Response to Some of the
Specific Proposals Offered in the Initial Comments

Northern Telecom also disagrees with some of the initial comments that offered observations on, or technical or other modifications to, the Commission's E-911 proposals. As one such added requirement, Consumers First wants cellular phones to automatically access the stronger signal (A or B) on 911 calls from a cellular phone.^{24/} Northern Telecom observes that this request raises difficult technical hurdles, since it will involve complex redesign and retrofitting or reprogramming of all current handsets. In addition, there may be important business issues raised by this proposal, since there is unlikely to be a "roaming" or other agreement among the cellular systems using the different frequency blocks. With respect to future services such as PCS, the expectation of numerous licensees in each market would further complicate the technical and business issues. While the Consumers First proposal could be studied as a going forward issue, it should not be adopted without a careful review by the industry of its feasibility.

NARUC requests that the States be allowed to impose stricter technical requirements than are adopted by the Commission.^{25/} Northern Telecom believes that allowing the States to increase burdens within their jurisdiction could lead to a patchwork of differing requirements. As Northern Telecom

^{24/} Consumers First at p. 8.

^{25/} NARUC at p. 5.

demonstrated in its initial comments, PBXs and wireless handsets will move across state boundaries. PBXs may also serve stations in different jurisdictions. In addition, virtually all PCS MTA markets cover areas in more than one state. For example, the New York MTA covers areas in nine states. As a result, equipment manufacturers and licensees of the new PCS MTA markets would be seriously affected by inconsistent state technical requirements.

The PCS licensees will want uniform functionality from equipment throughout their market area, and different technical features for different portions of a territory would likely increase the cost of equipment and software to unrealistic levels. Similar to the multi-state issue with respect to PCS MTAs, the trend in CMRS services in general has been to provide nationwide or regional coverage, with transparent coverage across many service territories. The potentially different requirements could cause confusion, and would also create scale diseconomies as manufacturers would need to customize their equipment to meet the requirements of each jurisdiction. Thus, Northern Telecom urges the Commission to impose uniform, nationwide standards and requirements.

Shelby County requested that PBX stations have the ability to access E-911 (and provide ANI and ALI) whether 911, 9-911 or X-911 is dialled. Northern Telecom is concerned that such a requirement would require a significant redesign of PBXs. Absent adding additional "look ups" (with resultant delay) on every call before a trunk was selected, if 9-911 or x-911 were

dialled, it would be impossible to put the call on the dedicated 911 trunks. If the call does not go out on the proper trunk, ANI might not be provided, and called party control might not be available.^{26/} In addition, such a requirement would have implications for the North American Numbering Plan. Northern Telecom thus believes it is preferable to educate PBX users on the proper dialling sequence -- simply dialling 911 -- rather than to impose extensive burdens on vendors and customers.

Several initial comments offered support for the JEM Report.^{27/} Northern Telecom believes that the JEM Report, which was the output of meetings of many of the affected interests, will provide a good starting point for the negotiated rulemaking process. It is not, however, a final blueprint with respect to the many unresolved issues raised by the E-911 NPRM.^{28/} In addition, while the JEM Report represents the consensus of the parties that attended the meetings, not all of the potentially affected interests were in attendance at those meetings.

^{26/} Similarly, New Jersey's suggestion to send 10 digit ANI from a PBX by modifying "automatic identification of outward dialling" rather than utilizing a separate line/trunk from a PBX would also make it difficult to ensure that the proper type of trunk (permitting called party control) is utilized. In addition, New Jersey's suggested use of peripheral devices could be cost prohibitive for small PBXs and KTSs, since the cost of the peripheral devices would exceed the cost of the PBX/KTS.

^{27/} E.g., APCO/NENA/NASNA at pp. 36-37; Pertech at p. 8; AT&T at p. 17. AT&T is incorrect, however, when it refers at p. v of its comments to JEM as a "process"; the JEM was a discrete set of meetings and not an ongoing process.

^{28/} Cf., Pertech at p. 8, recognizing that important details, such as phase in periods, are absent from the JEM report.

Cellular Networking Perspectives in its initial comments indicated that Call Back Capability cannot be accomplished just with the subscriber's directory number when the cellular phone is roaming. Cellular Networking Perspectives stated that the PSAP would need to utilize a temporary local directory number or a MIN with a two stage dialling procedure (roamer port) to call back the handset. Northern Telecom believes that it would be best to refer this issue to the negotiated rulemaking committee to determine whether the delay from transferring the call via the roamer's home switch (under the current technology) warrants the redesign or reconfiguration of call back capability as proposed by Cellular Networking Perspectives.

Some of the initial comments suggest that the datalink protocol for the wireless E-911 networks should be based on TIA IS-41 rather than SS7.^{29/} Northern Telecom observes that IS-41 is a wireless protocol that does not apply to the wireline network. Moreover, it is not even used by all wireless systems at present. Northern Telecom believes that the Commission should leave it up to the standards groups or negotiated rulemaking committee to devise appropriate, uniform standards (or interworking provisions), rather than attempt to prescribe such standards based on the record to date.

^{29/} E.g., Cellular Networking Perspectives at p. 2. Cf. PCIA at p. 23 (use the same protocol for wireline and wireless or a means of interworking must be developed and deployed).

Caddo in its initial comments urged the Commission to mandate equipment or interfaces that will allow old PSAP and customer equipment to be retrofitted.^{30/} Northern Telecom appreciates Caddo's concern with imposing costs and premature obsolescence on the emergency services providers and end users. On the other hand, such concerns should not necessarily outweigh overall system costs if it turns out that they could be lessened by requiring updates to the PSAP or customer equipment. Similarly, in order to achieve the functionality desired by the emergency services providers, it may be necessary to replace rather than simply upgrade the PSAP or customer equipment. Northern Telecom thus expects Caddo's concern to be an important issue, but not the only factor to be considered by the negotiated rulemaking committee or other standards setting bodies.

New Jersey in its initial comments observed that Call Party Hold and Ring Back were two features of basic 911 which were not normally included as mandatory E-911 features.^{31/} Northern Telecom observes that these features do not presently work in a wireless environment, nor do they necessarily work from a PBX. The current approach is to incorporate a call back capability as a substitute. As it indicated in its initial comments, Northern Telecom believes that it would be beneficial for the negotiated rulemaking committee to study "Called Party Disconnect Control" as a potential long term enhancement of E-

^{30/} Caddo at pp. 7-8.

^{31/} New Jersey at p. 18.

911, which would meet New Jersey's concerns.^{32/} Such a capability is not supported by PBXs and wireless systems at present, however.

BellSouth in its initial comments opposes the uniform adoption of NENA format for data bases, since it apparently has developed its own format which pre-dates the NENA standard.^{33/} Northern Telecom believes that it is important to have a uniform, nationwide standard for the data bases, particularly if automated, direct updates are required from PBXs. It would be impractical to have to modify each PBX to conform to the local format. In addition, PBXs are migrated across jurisdictions and also sometimes serve stations in multiple jurisdictions. Under these circumstances, it is important that a single standard apply. Whether the NENA format could be improved is an issue that the negotiated rulemaking committee could study, taking into account the impact on the "embedded" base.

Finally, several of the initial comments suggested that the Commission should adopt a limitation of liability provision, similar to what several states have already enacted.^{34/} Northern Telecom believes that a federal rule limiting liability should be adopted, and it should be extended to the manufacturers of the equipment as well. Manufacturers potentially face many of the

^{32/} Northern Telecom at p. 38.

^{33/} BellSouth at p. 10.

^{34/} E.g., CMT at p. 11; AT&T at p. 41; Bell Atlantic at p. 12; PCIA at pp. 27-28; US WEST at pp. 24-25.

same risks as service providers, and a failure to limit their liability could result in manufacturers being unwilling to produce customer and network equipment necessary for the provision of E-911 services.

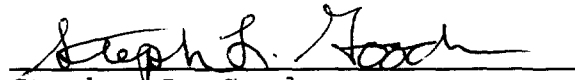
CONCLUSION

Northern Telecom, after reviewing the extensive record generated to date, continues to believe that in order to fully achieve the Commission's goals for E-911, much work remains. With respect to some aspects, implementation can occur rapidly. As many of the other initial comments observe, however, with regard to other proposed changes, requirements need to be defined, standards need to be developed, equipment needs to be modified, and advanced capabilities need to be deployed. Northern Telecom believes that a negotiated rulemaking committee is the best procedure for laying the groundwork to accomplish these tasks in a timely manner. Northern Telecom also believes that a negotiated rulemaking committee can best balance the costs and benefits of the various proposals, including some of the new proposals set forth in the initial comments.

Given the magnitude of the effort required, some additional time beyond some of the milestones suggested by the Commission may be necessary, notwithstanding the request of some emergency services providers to require even faster availability. Northern Telecom believes any extra time will be well spent,

however. Through the continued work of manufacturers, telephone service providers and emergency services providers, a better E-911 service can emerge. Northern Telecom believes that such an enhanced E-911 capability will well serve the public interest by helping to save lives and property. Northern Telecom thus continues to urge the Commission to proceed in the manner detailed in Northern Telecom's initial comments.

Respectfully Submitted,

A handwritten signature in dark ink, appearing to read "Stephen L. Goodman", is written over a horizontal line.

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March 17, 1995